AMENDMENTS TO THE SPECIFICATION

Amend the paragraph found on page 1, lines 1-4 as follows:

Field of the Invention

This invention relates generally to switched Ethernet networks, and more particularly to provision of Quality of Service (QoS) mechanisms in these networks. Particular embodiments of the invention provide methods for managing data communications in such networks to support guaranteed QoS, and to Ethernet switches and network systems for implementing these methods.

Amend the paragraph found on page 1, lines 5-14 as follows:

Background of the Invention

Ethernet is the predominant network technology in the local area network (LAN) market, driven by its relatively low cost in comparison with other competing technologies. Although technologies such as ATM (Asynchronous Transfer Mode) have been proposed as the network technology for support of multimedia to desktop, the large installed base of 10Mbps Ethernet networks, the rapid proliferation of 10/100 Mbps Ethernet (Fast Ethernet) and the emerging Gigabit Ethernet technologies suggest that Ethernet will be the underlying technology for supporting real-time, continuous media services to the desktop. With increasing interest in IP (Internet Protocol) telephony services, first by the information technology sector and now by telecommunications companies, demand for commercial products supporting continuous media to the desktop is to be expected.

Amend the paragraph found on page 3, lines 3-21 as set forth below:

Summary of the Invention

In embodiments of the present invention, therefore, the hosts participating in a given data communication, i.e., the transmitting and receiving hosts, are assigned to a logical group. Within the switch, each group is associated with a service class, or QoS class, for which the forwarding requirements are defined, whereby the switch forwards data corresponding to a particular service class in accordance with those requirements. However, when necessary to endure that the switch can continue to meet the forwarding requirements of at least one service class, the switch can disable data communications for one or more host groups as appropriate, effectively deactivating those groups. As a simple example, if the ability of the switch to service communications at a required rate for a particularly important service class becomes compromised due to excess traffic of a less important service class, the switch could deactivate the group(s) corresponding to the less important class to endure that the required QoS is preserved for traffic in the more important class. As a further example, the minimum rate at which communications must be served for each service class could be defined, and the switch could deactivate any groups generating excess traffic as required to ensure that the minimum service rate can be met for all service classes. Whatever the particular system employed, since the switch can deactivate specific host groups, only

hosts in those particular groups are penalized and not an arbitrary set of hosts in a particular LAN segment as in the existing system discussed above. This facility for deactivating host groups as necessary to ensure service requirements can be met thus allows QoS to be guaranteed for one or more service classes as desired for a given implementation.

Amend the section found on page 7, lines 9-23 as follows:

Brief Description of the Drawings

Preferred embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings in which:

Figure 1 is schematic diagram of an Ethernet switch for implementing embodiments of the invention;

Figure 2 is a schematic diagram of a simple network embodying the invention;

Figure 3 is a flow chart illustrating a set up procedure for a communications session in the network of Figure 2;

Figure 4 illustrates the association of group ids and service classes in an example of operation of the network of Figure 2;

Figure 5 illustrates the scheduling of groups for the example of Figure 4;

Figure 6 is a flow chart illustrating the frame forwarding operation performed by the switch;

Figure 7 illustrates a congested situation of the switch in operation; and

Figure 8 is a flow chart illustrating a monitoring process performed by the switch in operation.

Amend the paragraph found from page 7, line 24 through page 8, line 20 as follows:

Detailed Description of the Invention

Figure 1 is a generalized schematic of an Ethernet switch 1 showing the main elements involved in operation of embodiments of the invention. For the purposes of this description, the switch 1 can be considered to comprises a plurality of ports 2 (eight being shown here) to which LAN segments can be connected in the usual way, and a forwarding component indicated generally at 3. The forwarding component 3 serves to forward data received at a switch port 2 across the switch onto the requires LAN segment via the appropriate outbound port 2. The forwarding component 3 is illustrated here as comprising switching fabric 4, control logic 5 and memory 6. The switching fabric 4 here comprises switching circuitry providing the physical mechanism via which data is transmitted across the switch, typically a shared bus or switching-matrix structure of known form. The control logic 5 controls operation of the forwarding component generally, and performs the functions described in detail below for managing data communications to support QoS guarantees. In general, control logic 5 may be implemented in hardware of software, or a combination thereof, though the control logic will typically be implemented by a processor running software which configures the processor to perform the functions described, and suitable software will be apparent to those skilled in the art from the description herein. (Of course, while the switch processor may be

preconfigured with appropriate software, the program code constituting such software could be supplied separately for loading in the switch to configure the processor to operate as described. The program code could be supplied as an independent element or as an element of the program code for a number of control functions, and may be supplied embodied in a computer-readable medium or transmitted electronically to an operation, e.g., by downloading from an Internet site, for loading in the switch). Memory 6 represents generally the storage provided in the switch for both data received from network hosts to be forwarded across the switch, and data used in the control and management functions performed by control logic 5. Thus, while memory 6 is illustrated for simplicity as a single entity, it will be apparent to those skilled in the art that there will generally be various input and/or output buffers associated with each switch port 2 for storage of data in transit between hosts, as well as working memory associated with control logic 5.